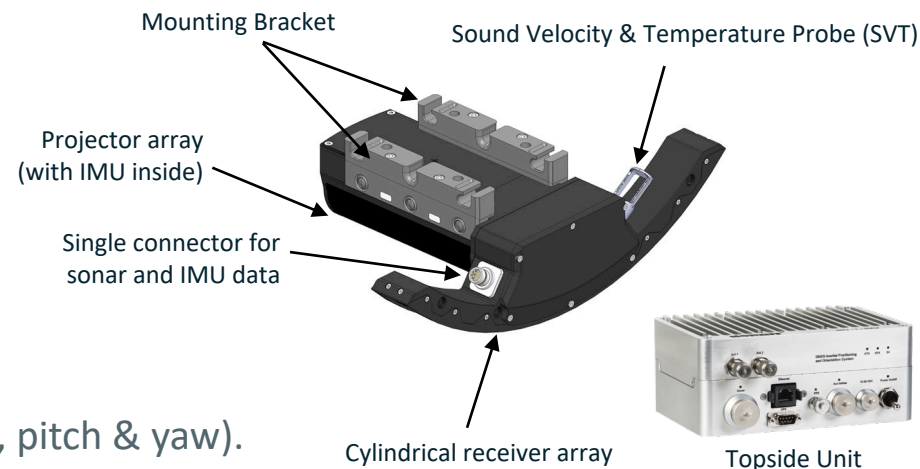




Quay Wall Inspection With NORBIT WINGHEAD

Trondheim, Norway

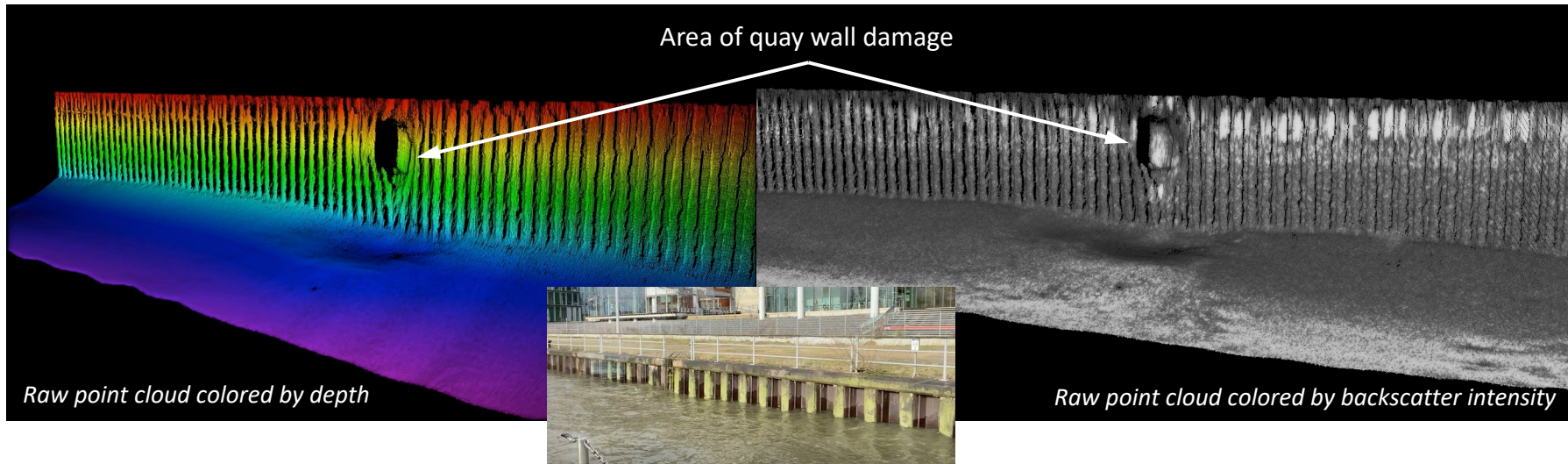
- This case study highlights the benefits of using the NORBIT WINGHEAD i77h sonar for quay wall and vertical structure inspections in ports and harbors.
- Key Features:
 - Frequency agile 200-700kHz.
 - $0.5 \times 0.9^\circ$ beam widths at 400kHz.
 - HD beamformer providing 1024 beams per ping.
 - High performance integrated GNSS/INS systems.
 - Integrated sound velocity and temperature sensor.
 - Small form factor and low power consumption.
 - Designed for rapid mobilization on *any* platform.
 - Options available with full motion stabilization (roll, pitch & yaw).
 - Available with optional LiDAR.



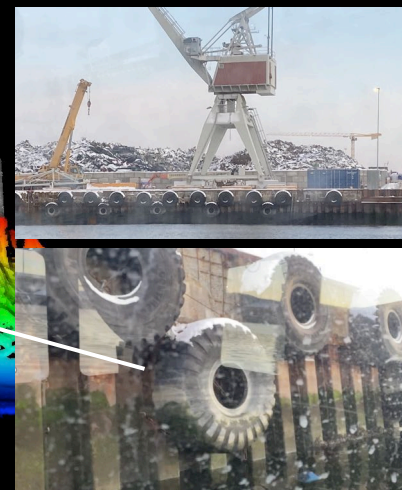
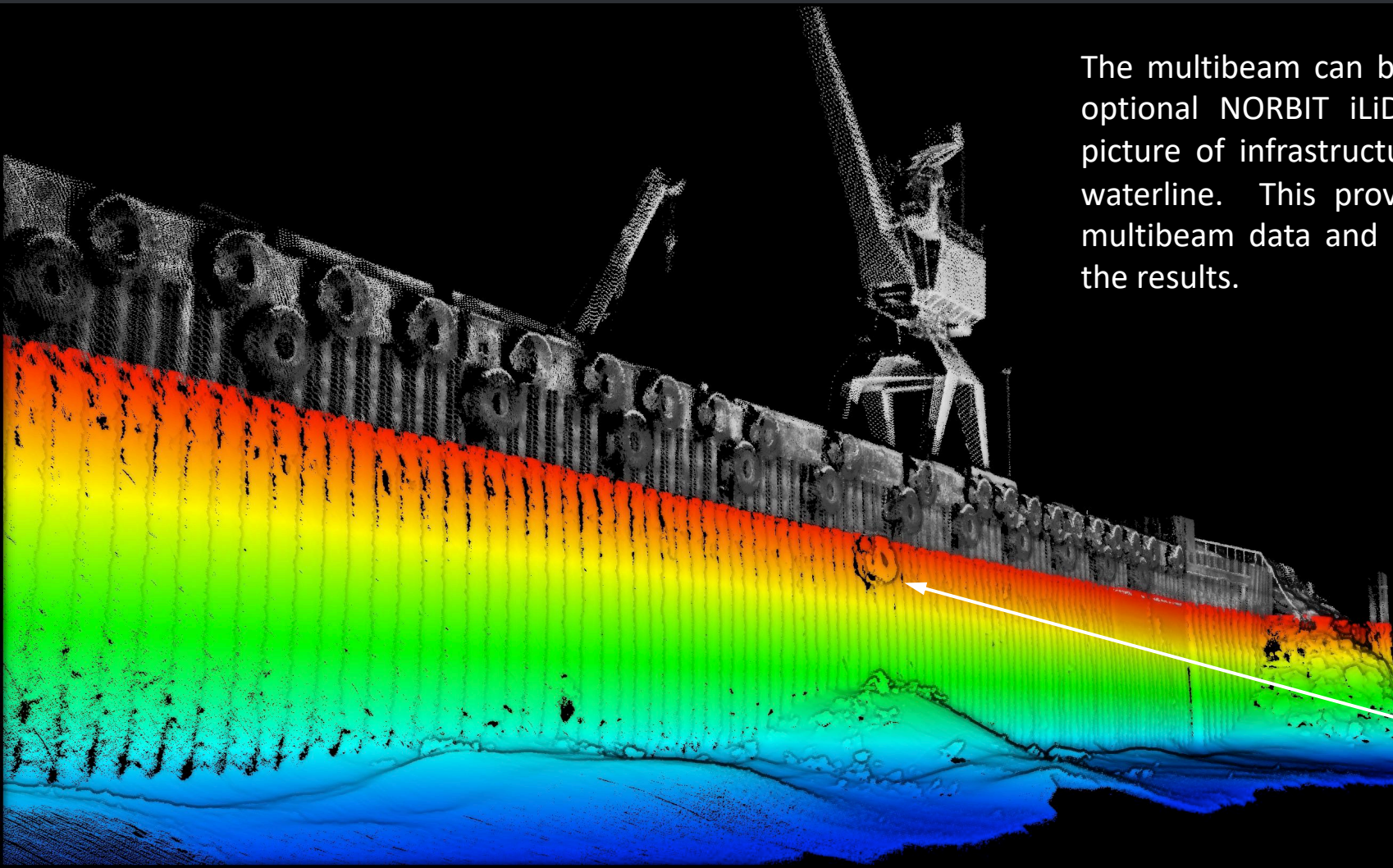
- The NORBIT WINGHEAD® is the most compact ultra-high resolution multibeam survey system currently available.
- All components fit in a single pelican case that meets airline baggage requirements:
 - NORBIT WINGHEAD® i77h sonar with integrated IMU
 - GNSS antennas
 - Topside unit
 - Sonar and antenna cables
 - Optional sound velocity profiler
 - Optional LiDAR



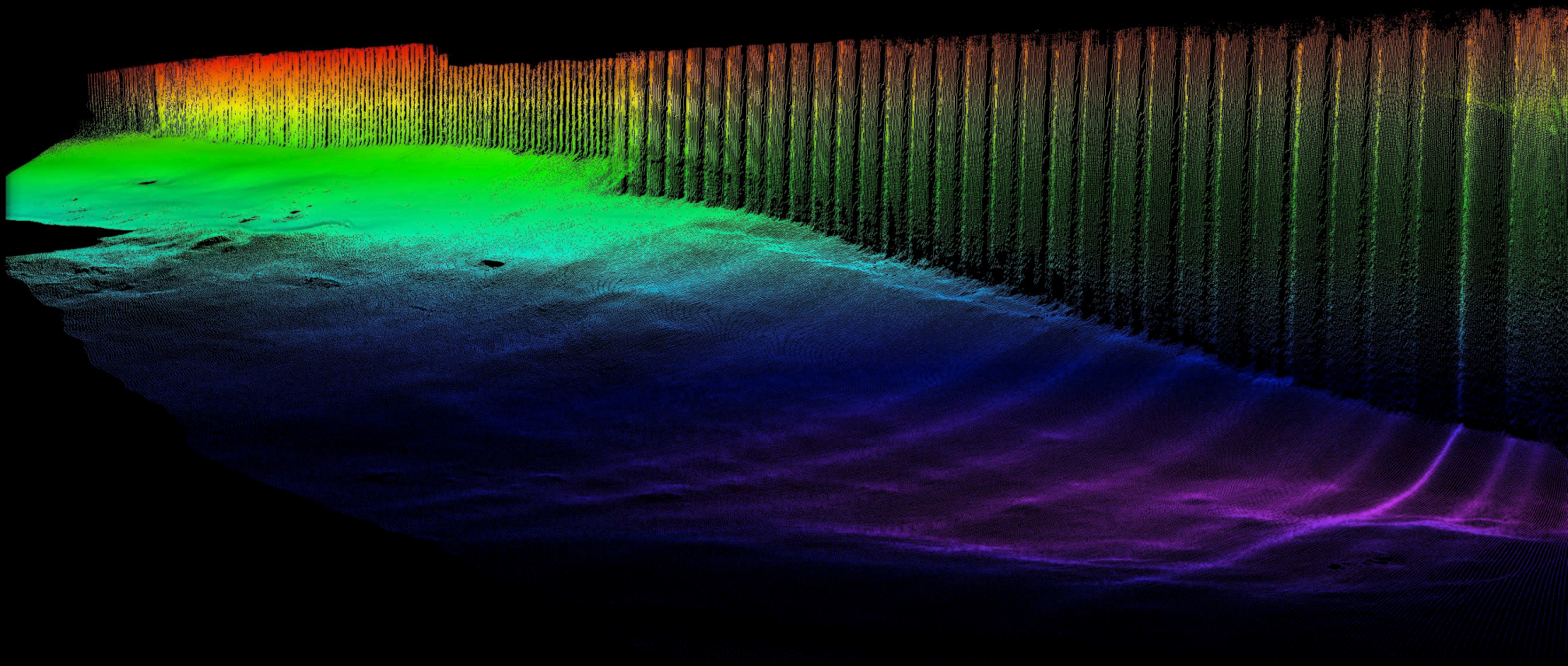
- NORBIT's curved array technology allows beams to be steered electronically without physically rotating the sonar.
 - With conventional multibeam systems, beam width resolution degrades significantly as the beam steering angle increases away from nadir.
 - With curved arrays, beam spreading is significantly less, which makes the NORBIT WINGHEAD ideal for quay wall inspection work where high resolution is required.



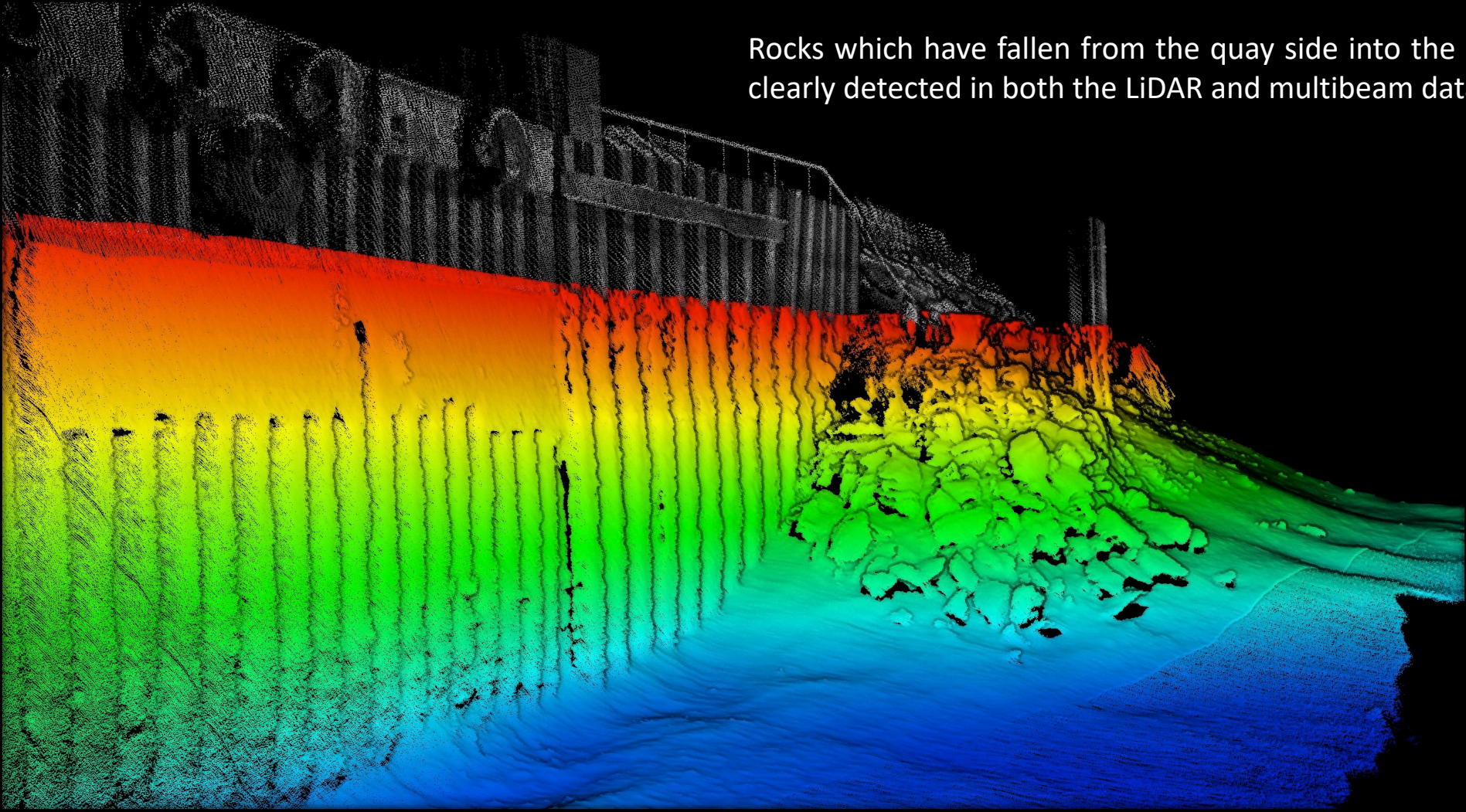
The multibeam can be combined with the optional NORBIT iLiDAR to obtain a full picture of infrastructure above and below waterline. This provides context for the multibeam data and aids interpretation of the results.



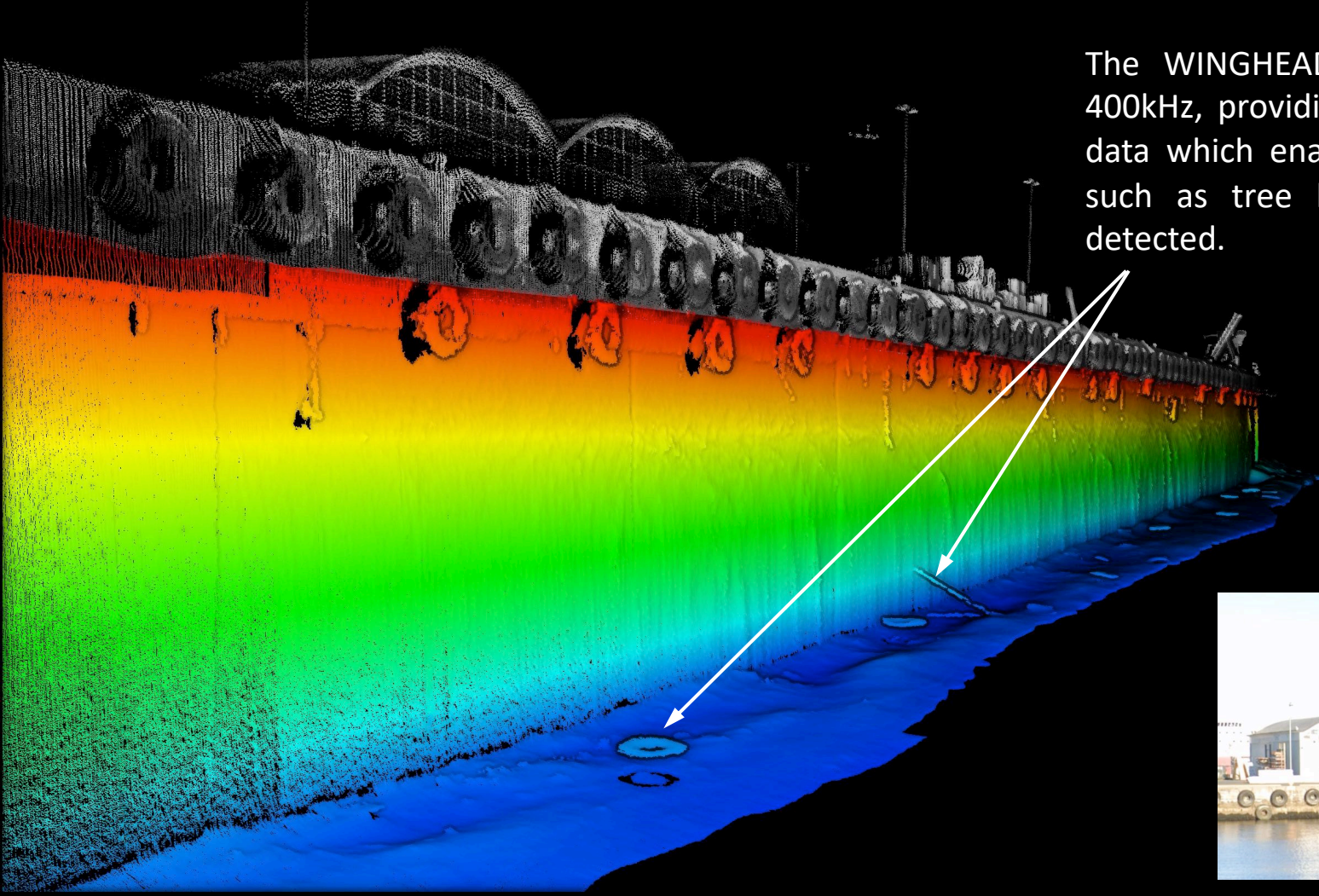
The NORBIT WINGHEAD generates up to 1024 true beams per ping, providing ultra high sounding density on the quay wall, which is essential for reliable inspection work.



Rocks which have fallen from the quay side into the water are clearly detected in both the LiDAR and multibeam data.



The WINGHEAD offers $0.5 \times 0.9^\circ$ beams at 400kHz, providing extremely high resolution data which enables tires and small objects, such as tree branches and ropes, to be detected.



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